

15th May 2012

1. General Aspects

EURAMET TC-L has currently contact persons from 34 EURAMET members and 5 observers: 1 from a DI, 3 from liaison NMIs (EG, RSA and IL) and 1 from liaison organisation (BIPM). EURAMET will take care of the CMC-process for EG and IL.

In the last meeting we had 36 participants, which is quite large number for detailed discussions. Also since only from 10 to 20 NMIs are interested in taking part to EMRP research, TC-L decided to set up a workgroup just to take care of EMRP issues. The benefits of the group are at least following: smaller groups of interested attendees will improve communication, additional meetings may be scheduled more freely e.g. matching dates with EMRP calls and it would allow several attendants from some NMIs. The purpose of the working group is to improve co-operation between NMIs for EMRP. Harald Bosse from PTB was selected to be convenor of the WG.

2. Projects

During 2011 project database was checked and statuses of the length projects were updated. Altogether 10 final report forms were sent to the secretariat by pilots and 12 projects were updated from proposed to agreed/started. In the period under review there were a total of 26 active projects with 17 being comparisons. In last TC-L meeting 10 new project proposals were discussed.

3. Comparisons

Key comparisons

The current status of EURAMET length key comparisons, in line with the CCL-KC, is as follows. Changes since the last GA meeting are shown in **red**.

Designation	Title	Status
EURAMET.L-K1	Gauge blocks	Executive report
EURAMET.L-K1.1	Gauge blocks	Executive report
EURAMET.L-K1.2	Gauge blocks	Final & executive reports
EURAMET.L-K1.2010	Gauge blocks	Just started
EURAMET.L-K2	Long gauge blocks	Executive report
EURAMET.L-K3.1	Optical polygons	Final report, KCDB
EURAMET.L-K3.2009	Angle comparison using an autocollimator	in progress
EURAMET.L-K4.2005	Diameter standards	Final, KCDB, executive report
EURAMET.L-K5.2004	Step gauge	Final report
EURAMET.L-K6	2D-CMM artefacts	Draft A, finally some progress
EURAMET.L-K7.2006	Line scales	Final report, executive report
EURAMET.L-K8	Surface texture - Roughness	In progress

Gratifying progress with key comparisons was that EURAMET.L-K5.2004 and EURAMET.L-K6 proceeded after several silent years. EURAMET.L-K5.2004 even so well that final report is already accepted and executive report is almost done. EURAMET.L-K7.2006 was finished in good pace and executive report is already done.

Supplementary Comparisons

Only one supplementary comparison is running currently.

Designation	Title	Status
EURAMET.L-S20	Comparison of laser distance measuring instruments	In progress

In last TC-L meeting we started again to follow in more detail the actions of the NMIs after bad results in MRA comparisons. When doing this we follow guidance document CCL/WG-MRA/GD-1:

http://www.bipm.org/wg/CCL/CCL-WG/Allowed/General_CCL-WG_docs/Corrective_actions_guidance-v4.pdf.

It seems that despite this guide there is still some confusion regarding the actions of NMIs after bad results in comparison.

4. CMCs

An overview of the past and present CMC submission is given in the table below.

Red entries changed status during the period reported.

Designation	Comment	Status
EUROMET.L.1.2001	Full submission, almost all services, most EUROMET NMIs	published, 2001-10-30
EUROMET.L.2.2002	Minor updates/submissions from GB and FI.	published, 2003-01-09
EUROMET.L.3.2004	Submissions from AT, CH, CZ, DE, HU, IT, NO. Also first submission from BG, LT, LV, RO, SI, YU.	published, 2005-03-23
EUROMET.L.4.2006	24 minor updates and 35 new submissions.	published, 2006-05-10
EUROMET.L.5.2007	19 updated or new CMCs from 7 NMIs	published, 2007-05-21
EUROMET.L.6.2008	37 CMCs (new and updated) from 8 countries including EG	published, 2009-02-11
EUROMET.L.7.2009	33 CMCs (new and updated) from 8 countries	published, 2009-11-21
EUROMET.L.8.2010	35 CMCs (new and updated) from 12 countries	published, 2010-04-21
EUROMET.L.9.2010	14 CMCs (new and updated) from 5 countries	published, 2010-09-19
EURAMET.L.10.2011	29 CMCs / 8 countries	published, 2011-08-18
EURAMET.L.11.2011	47 CMCs / 11 countries	inter-regional review, 2012-04-13

In the period reported a total of 9 CMC sets from other RMOs were treated by TC-L, most of them already published in the KCDB now (4 from COOMET, 1 from SIM, 4 from APMP).

In the last TC-L meeting and CCL WGMRA meeting we discussed about changing the style how to present length dependent uncertainties. From the last CCL WGMRA minutes: "A larger issue was that many (most) of the length CMCs were stated in a format that was not consistent with the style used by accreditation bodies – they prefer to see a quantity equation. So 'Q[20, 0.18L] nm, L in mm' should become 'Q[20 nm, 1.8E-7L]'. The KCDB website programming can cope with the necessary format changes. Old and new CMCs could exist at the same time in any combination. However, it may require full JCRB inter- and intra-RMO review of the updates, and the whole process would require some formalisation through JCRB and maybe CIPM."

EURAMET TC-L had decided that it wished to work towards this goal, but the process was not fully decided.

5. Activities of the Sub-Committees

There are no sub-committees in TC-L.

6. EMRP

TC-L community was quite successful in 2010/2011 calls. Funded **length** and *length related* JRPs of EMRP 2010 and 2011 calls are listed below:

2010	IND05	MeProVisc	Dynamic Mechanical Properties and Long-term Deformation Behaviour of Viscous Materials
	IND10	Form metrology	Optical and tactile metrology for absolute form characterization
	IND11	MADES	Metrology to Assess the Durability and Function of Engineered Surfaces
	IND13	Thermal design and dimensional drift	Thermal design and time-dependent dimensional drift behaviour of sensors, materials and structures
	IND14	Frequency	New generation of frequency standards for industry
	IND17	Scatterometry	Metrology of small structures for the manufacturing of electronic and optical devices
2011	HLT02	MetVes	Metrological characterisation of microvesicles from body fluids as noninvasive diagnostic biomarkers
	SIB08	Subnano	Traceability of sub-nm length measurements
	NEW01	TReND	Traceable characterisation of nanostructured devices
	NEW05	MechProNO	Traceable measurement of mechanical properties of nano-objects
	NEW06	TraCIM	Traceability for computationally-intensive metrology
	NEW08	MetNEMS	Metrology with/for NEMS
	NEW09	METCO	Metrology of electro-thermal coupling for new functional materials technology

For 2012 call TC-L EMRP WG meeting was held at PTB 14.-15. Feb. 2012. Meeting was open also for companies and other research organisations. Approximately 40 persons took part to working group meeting mostly from various NMIs.

[http://www.euramet.org/index.php?id=latestevents&tx_ttnews\[tt_news\]=249&cHash=42ed70027a73c240a012b32a328b1b71](http://www.euramet.org/index.php?id=latestevents&tx_ttnews[tt_news]=249&cHash=42ed70027a73c240a012b32a328b1b71)

7. Meetings

Last meeting:

- 2011 TC-L CP meeting, 3-4 October 2011, METAS, Wabern, Switzerland

The annual meeting of 2011 was followed by Macroscale 2011 conference, which was jointly organised by METAS and PTB under auspices of CCL. In Macroscale there were approximately 100 participants around globe mainly from NMIs, but also from universities and companies.

Next meetings:

- 2012 TC-L CP meeting, 22 - 24 Oct. 2012, GUM, Warsaw, Poland

8. Strategic planning

EURAMET TC-L CP meeting 2011 discussed about strategic planning and it was decided that during EMRP WG meetings also roadmap update for EMPIR is planned and started.

In EMRP WG meeting it was decided that the four roadmaps originally created for EMRP Outline 2008 will be updated:

- Dimensional metrology for micro-nano technology
- Dimensional metrology as enabling technology for long-term fundamental research
- Long range dimensional metrology
- Dimensional metrology for advanced manufacturing technologies

The work was divided to group of volunteers from various NMIs. The first drafts are ready before GA 2012 meeting.

9. Outlook for 2012

- Roadmap update for EMPIR will be one extra task
- CMCs are in pretty good shape, but work continues
- Improved co-operation for next call due to new TC-L EMRP WG

Antti Lassila

TC-Length Chairman, 15th May, 2012